HAGERMAN HATCHERY
ANNUAL REPORT

October 1, 1989 to December 31, 1990

Prepared by

Tom Frew, Fish Hatchery Superintendent III
Ralph Steiner, Fish Hatchery Superintendent I
Dave May, Fish Culturist
Kevin Price, Fish Culturist

INTRODUCTION

Hagerman Hatchery is a state-owned trout production facility. The hatchery raises several strains of rainbow trout, brown trout, and various specialty species for statewide distribution. Hagerman Hatchery is the Idaho Department of Fish and Game's largest resident trout production facility. Built in 1947, it is located approximately 30 miles west of Twin Falls on the Snake River.

Funding is provided through licence money, with $382,700 used for fish production in 1990, excluding capital outlay expenditures.

The hatchery is staffed with four permanent employees. Twenty months of temporary labor are available during the stocking season.

The water supply includes approximately 40 cfs from Tucker Springs and approximately 70 cfs from Riley Creek. The Tucker Springs water serves the 2,520 cubic feet of rearing space in the hatchery building, 10,530 cubic feet of rearing space in fingerling ponds, and up to 118,560 cubic feet of rearing space in large production raceways. Riley Creek water supplies the 287,280 cubic feet of rearing space available in 12 additional raceways. The Tucker Springs water is a constant 59°F year-round, and Riley Creek fluctuates from 52°F to 62°F on an annual basis.

HATCHERY PRODUCTION

Hagerman Hatchery planted 5,568,255 fish during fish year 1990. Of these, 871,023 were planted at 8 to 10 inches long and 4,697,232 were planted at 3 to 6 inches long. The 8- to 10-inch fish were rainbow trout of various strains and sturgeon, while the 3- to 6-inch fish consisted of rainbow trout, brown trout, tiger muskies, Kamloops trout, cutthroat, and cutthroat x rainbow hybrids (Table 1). In addition to the requests from the regions, 42,975 channel catfish (CC) were planted by the hatchery crew.

The 501,856 pounds produced included 238,750 pounds of 8- to 10-inch fish that were planted in the state's waters, and 263,106 pounds of 3- to 6-inch fingerlings were planted. The cost of producing the average 11 per pound (5.8 inches) fish was approximately $0.76 per pound, or $68.73 per 1,000 fish, or $0.0118 per inch for the average fish reared (Appendix 4).

HAGRMN90

Table 1. Fish requested and produced.

Species & Size	Production Goal	Actual Production	Percentage of Goal Achieved[a]
Rainbow (R1) 8-10"	832,900	870,415	105%
Rainbow 3-8"	2,311,500	2,551,106	110%
Kamloop (K1) 3-8"	1,258,000	1,567,594	125%
Browns (BM) 3-6"	124,000	88,250	71%
Tiger Muskies (TM)	[b]	20,252	
Rainbow x Cutthroat RC	[b]	423,030	
Henrys Lake Cutthroat	[b]	47,000	
White Sturgeon	[b]	608	
Totals	5,016,680	5,568,255	

[a]Note: The inflated percentages reflect fish that were to be planted prior to September 30, 1989 but were actually planted after that date.
[b]No specific request

A total of 10,536,753 eggs were acquired to yield the fish produced. A total of 3,998,392 eggs were purchased, and the remaining 6,538,361 eggs were acquired from governmental sources at no cost (Appendix 1). In addition to the eggs received, the hatchery received 25,000 sac fry sturgeon on May 31 , 1990 from the College of Southern Idaho. The adults were caught using hook and line and held at the college until spawning.

The fish produced during fish year 1990 were fed a total of 625,464 pounds of feed acquired from the contract sources; Rangens, Inc., Clear Springs, Inc., Biosponge, Inc., Bio-products, and Bio-Kyowa (Appendix 3). The overall conversion was 1.25 pounds of feed to produce one pound of fish.

HATCHERY IMPROVEMENTS

Several hatchery improvements were completed this year. The hatchery crew enclosed the entire west raceway system with netting to exclude any predators from this early rearing area.

HAGRMN90

An air blower system designed by the hatchery crew and John Hinde, Inc. was installed on six of the large raceways to help keep the settleable solids from accumulating in the raceways.

Circular rearing units for specialty species such as tiger muskies were provided from the American Falls Hatchery and provided an excellent quality product for the fishing public.

Other improvements included modification and fine tuning of stocking rates in the raceways, feeding rates and diets for the 11 different species, and strains of fishes reared this year at Hagerman.

Structural improvements included painting of the interiors of two of the residences, enclosing one of the air blowers, and provisions for domestic water and electricity to the west raceway area.

Capital purchases included a new kitchen range for Residence 2, a new wire-feed welder for the shop, and replacement of two of the trucks.

FISH HEALTH

The area of fish health at Hagerman Hatchery received the most effort and time from the hatchery personnel this year. We reevaluated the rearing environment, nutrition, medication usage, vaccine trials, and fine tuning of feed projections. Continuous monitoring of several feed and vaccine trials by the fish pathology staff resulted in better understanding of the progression of the epizootics that Hagerman has experienced in the past.

The Fish Disease Lab was called to work at Hagerman 21 times during fish year 1990. Seven epizootics were due to clinical IHN infections, five calls were due to losses from coldwater disease, and the other visits were due to various other agents, including aeromonas, pseudomonas, BGD, IPN, and gill bleeding, probably due to an infection of Loma salmonae. Losses due to IHNV/coldwater disease accounted for over 1,500,000 fish of various sizes. These losses began soon after the ducks began using the Wildlife Management Unit ponds in mid-December and continued through the planting season. Historically, the IHNV/coldwater disease outbreaks begin during this same time period. All strains of rainbow were affected to some degree by this complex.

The IHN virus and losses due to bird predation are the main concerns at Hagerman Hatchery. Other losses were related to bacterial/environmental gill disease and other predators.

The hatchery was involved with the Fish Health Lab and Oregon State University in a vaccine trial for IHN virus. This vaccine was experimentally produced and administered to two different strains of rainbow commonly reared at Hagerman. The first trial was administered on November 27, 1989 to Erwin strain rainbow from Ennis, Montana. The second trial was administered to Hayspur

rainbow trout on January 4, 1990. These trials were followed weekly by the Fish Health Laboratory personnel to assess any changes and differences between the vaccinates and controls.

The first trial experienced a total loss of 15% in the controls and 3.7% loss in the vaccinates. The controls had significantly more coldwater disease than the vaccinates and had a higher intensity and longer duration of losses than the vaccinates.

The second trial experienced 1.8% losses in the controls and 0.8% losses in the vaccinates. Terramycin was fed to all of the fish in the second trial between 1,800 and 1,000 fish per pound to control the coldwater disease, and no epizootic was experienced due to this disease. IHNV was isolated at 18 fish per pound in the fish involved in the second trial; however, no epizootic was experienced in this trial.

An additional trial is currently in progress using Hayspur rainbow trout to try to duplicate these results.

Additional work to control coldwater disease included feeding the early fry Terramycin in the diet for 14 days in an attempt to control the causative bacteria invasion before it became entrenched in the lightly vascularized tissues of the fish. If the bacterial invasion is not controlled early, it appears that a seed area is not effected by treatments later in the life of the fish and can contribute to the losses experienced at about 3 inches in length.

PUBLIC RELATIONS

Hagerman Hatchery receives a large number of visitors and sportsmen throughout the year. The hatchery is surrounded by the Hagerman Wildlife Management Area (WMA). The WMA provides a large variety of outdoor experiences ranging from fishing and hunting to family picnic uses.

Approximately 55,000 visitors toured the facility and used the surrounding public grounds this year.

This year, a Free Fishing Day clinic was attended by approximately 150 people. The hatchery crew, regional personnel, and others helped these people learn the basics of fishing. This year, a series of stations was set up where the public could learn about different aspects of the sport of fishing. This was met with great success. Thanks goes to all who participated in this successful event.

HAGRMN90

Fish Tagging Operations

The hatchery crew participated in several tagging operations during the year. Seven of the Region 4 waters that Hagerman planted with catchables received jaw-tagged fish. The hatchery crew placed 1,275 jaw tags on fish that went to these waters. These fish were tagged in an effort to calculate the return-to-the-creel on these fish. A hat was given out as an incentive for the fishermen to return the tags.

Cascade Reservoir received 168,920 Kamloop trout that were clipped with a left ventral clip and 145,000 rainbow trout that had a right ventral clip. The Kamloop trout were 6 to 8 inches in length and the rainbow trout were 9 inches in length. This program is an effort to obtain survival of the two sizes of fish at planting.

Winchester Reservoir received 10,000 left ventral-clipped Kamloop trout in an effort to track survival and return-to-the-creel on this fish.

The hatchery crew worked in conjunction with the College of Southern Idaho to PIT tag the 608 Brood Year 1988 sturgeon that were planted into the Snake River this year. These tags may allow biologists to gather information about these fish.

Hooking Mortality Study

The hatchery staff participated in a hooking mortality study designed by Dan Schill of the Fishery Research Section. This study was developed to determine if leaving the hook in a catchable-sized trout was better than removing the hook. Several groups were involved, including newspaper reporters, general public, and professional fisheries biologists. This spectrum was chosen for a variety of reasons, and a full report on the study is available from the Research Section.

HAGRMN90

A P P E N D I C E S

Appendix 1. Numbers of eyed-eggs purchased, species, and source.

Species/ Strain	Number Received	Date Received	Source
Rainbow/ Mt. Lassen	483,000	2 lots/ Sept.	Mt. Lassen California
Rainbow/ Kamloop	962,612	1/12/90- 2/15/90	Skanes Washington
Rainbow/ Erwin	250,000	9/26/89	Ennis, Montana
Rainbow/ Hayspur	2,986,038	10/26/89- 12/15/89	IDFG/ Hayspur
Brown Trout/ Wyoming	235,470	11/08/89- 01/02/90	WDNR, Saratoga, WY
Rainbow/ 3 strains	372,541	03/13/90- 04/03/90	UDNR, Egan, UT
Rainbow/ R1	950,000	07/21/89	Tasmania, New Zealand
Rainbow/ Fish Lake	157,162	03/28/90	Irwin, Tenn.
Rainbow/ Eagle Lake	1,024,297	03/29/90- 04/17/90	USFWS, Ennis, MT.
Rainbow, Kamloop x Steelhead	1,602,780	03/16/90- 04/11/90	Troutlodge California
Kamloop/ K2	788,802	02/12/90- 03/06/90	USFWS, Ennis, Mt
RC/	94,051	07/01/89	Colorado DW Glenwood Springs
Tiger Muskies/	60,000	PennDNR/ 4/4/90	Pennsylvania
Henrys Lake Cutthroat	570,000	04/09/90	IDFG/ Henrys Lake
TOTALS	10,536,753		

HAGRMN90

Appendix 2. Fish survival from eyed egg to plant, October 1, 1989 to December 31, 1990

Lot Number	Eggs Received	Size Number Planted	Percent **Survival**
R1 Erwin	250,000	140,426	56%
R1 Utah	372,541	160,812	43%
R1 Tennessee	157,162	94,458	60%
R1 Tasmania	950,000	389,319	41%
R4	483,000	121,190	25%
R7	1,024,297	625,570	61%
R9	2,986,038	1,575,532	53%
K1	962,612	333,660	35%
K2 Duncan River	788,802	65,190	8%
KS Troutlodge	1,602,780	1,091,991	68%
BN Wyoming	235,470	88,250	37%
RC Henrys Lake	570,000	423,050	74%
RC Colorado	94,051	20,926	22%
TM	60,000	20,252	34%
Total	10,536,753	5,150,626	49%

Note: An additional **417,629** fish were planted **after September** 31, 1989 that were included in the Fish Year 1989 report. These fish, plus the fish accounted for above, total the 5,568,255 fish reported in (Table 1).

HAGRMN90

Appendix 3. Fish Feed used during Fish Year 1990 at Hagerman Hatchery.

Size	Source	Pounds	Cost/ Pound	Cost
Starter	Rangens	700	$0.4400	$ 308.00
#1 Crumble	Rangens	1,550	$0.4400	$ 682.00
#1 Crumble/TM	Rangens	4,100	$0.5700	$ 2,337.00
#2 Crumble	Rangens	3,050	$0.4400	$ 1,342.00
#2 Crumble/TM	Rangens	2,150	$0.5700	$ 1,225.50
#3 Crumble	Rangens	13,300	$0.4400	$ 5,852.00
#3 Crumble/TM	Rangens	10,000	$0.5700	$ 5,700.00
#4 Crumble	Rangens	43,000	$0.3150	$ 13,623.75
#4 Crumble/TM	Rangens	11,850	$0.4450	$ 5,273.25
3/32" Pellet	Rangens	182,830	$0.2390	$43,696.37
	Clear Springs	21,920	$0.2135	$ 4,679.92
3/32" Pellet/TM	Rangens	8,100	$0.3690	$ 2,988.90
1/8 " Pellet	Rangens	78,860	$0.2390	$ 18,847.54
	Rangens/Float	100	$0.3000	$ 30.00
	Biosponge	11,200	$0.2850	$ 3,192.00
1/8" Pellet/TM	Rangens	2,700	$0.3690	$ 996.30
5/32" Pellet	Rangens	220,850	$0.2390	$ 52,783.15
1/4" Pellet	Rangens	1,100	$0.307	$ 337.70
Soft-Moist Starter	Rangens	550	$0.7790	$ 428.45
Soft-Moist 1/32	Rangens	3,520	$0.7150	$ 2,516.80
Soft-Moist 3/64	Rangens	495	$0.6820	$ 337.59
Soft-Moist 1/16	Rangens	55	$0.6100	$ 33.50
Soft Moist 3/32	Rangens	1,210	$0.5670	$ 686.07
Biodiet #1	Bioproducts	440	$0.8182	$ 360.00
Biodiet #2/TM	Bioproducts	704	$0.8439	$ 598.64
Biodiet #3/TM	Bioproducts	880	$0.8439	$ 3,192.00
Totals		625,214	$0.2711	**$169,515.53**

HAGRMN90

Appendix . Costs of fish produced at Hagerman State Hatchery, FY 1990. Costs reflect all costs budgeted except capital outlay.

Species	Actual Production	Weight Pounds	Costs to Produce and Plant	Cost per 1,000	Cost per inch
(R1) 7-10"	871,023	238,750	$182,062	$209.00	$0.025
Spring Fingerlings					
(R1) 3-5"	33,000	1,700	$ 1,296	$ 39.28	$0.008
(K1) 3-4"	101,400	780	$ 594	$ 5.87	$0.002
(BN) 3-6"	70,210	1,363	$ 1,202	$ 14.80	$0.005
(R9) 3-5"	1,320,720	77,185	$ 58,860	$ 44.57	$0.009
(R7) 3"	530,985	2,698	$ 2,057	$ 3.87	$0.0017
Fall Fingerlings					
(R1) 4-6"	556,741	32,910	$ 25,097	$ 45.07	$0.009
(K1) 4-8"	440,011	68,550	$ 52,276	$118.80	$0.017
(BN) 7"	18,040	1,640	$ 1,250	$ 69.33	$0.011
(C3) 3-4"	47,000	700	$ 533	$ 11.34	$0.0035
(RC) 5"	423,030	11,600	$ 8,846	$ 20.91	$0.0053
(KS) 5"	1,026,183	57,471	$ 43,827	$ 42.71	$0.0085
(R7) 5"	109,660	5,540	$ 4,224	$ 38.52	$0.0077
Tiger Muskies	20,252	969	$ 900	$ 36.48	$0.007
Totals	5,568,255	501,856	$382,700		

HAGRMN90